UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,601	11/03/2008	William Jones	ACH-3087 US	2182

56744 7590 10/13/2009

Albemarle Netherlands B.V.
Patent and Trademark Department
451 Florida Street
Baton Rouge, LA 70801

EXAMINER	
FORREST, MICHAEL	
ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
10/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,601	JONES ET AL.	
	Examiner	Art Unit	
	MICHAEL FORREST	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/15/2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1-2, 4-7, 9-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dieckmann et al(US Patent 5,565,181) and in further view of Kim(EP 0,554,968).

Dieckmann teaches a method for preparing an oxidic catalyst additive comprising:

(1) forming a slurry mixture consisting of:

(a) an aluminum compound (oxide suspension or nitrate);

(b) a magnesium compound (oxide suspension or nitrate); and

(c) $LnCu_{0.4}Mn_{0.6}O_3$ suspension where Ln is mainly La, Pr, and Nd;

(2) drying overnight and calcining the slurry mixture (see Example 1, Col 11, Line 35 to Col 12, Line 37).

Dieckmann does not specifically teach a method where the slurry mixture is aged and dried before calcination.

Kim '968 teaches a method of preparing a metal passivation/Sox control composition for FCC comprising:

(1) aging a MgO/La2O3/Al2O3 oxide ternary precipitate (slurry mixture);

(2) spray drying the slurry mixture; and

(3) calcining the mixture (see Figure 2 and Page 2-3).

Kim '968 teaches that the method produces a catalyst additive that is effective in FCC catalyst in controlling SOx emissions and passivating metals while resisting attrition and maintaining high surface area (see Page 2, lines 20-29). Aging is well known in the art of catalyst preparation as a method of controlling the size and density

of oxides (see Cites of Reference, Malley et al(US 2,980,632) where aging is used to control the density of alumina and Ashley et al(US 2411820) where aging is used to control the size of silica particles). Dieckmann further teaches multiple methods of preparing the slurry mixture including by suspension as above or by precipitation from nitrate showing that they are equivalent.

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Dieckmann where the slurry mixture is aged and dried before calcining as taught by Kim to produce a catalyst effective in resisting attrition and maintaining high surface area as well as to control the size and density of the particles according to the intended use.

It would also have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Kim where the slurry mixture is produced by mixing oxides as taught by Dieckmann because Dieckmann teaches that they are equivalent methods to produce a slurry mixture.

Regarding Claim 2, Dieckmann further teaches a method where no sodium is present in the mixture and concentrated ammonium hydroxide is added to the slurry mixture (see Example 1, Col 11, Line 52 to Col 12, Line 23).

Regarding Claim 4-5, Dieckmann teaches a method where MgO is used (see Example 1, Col 11, Line 52 to Col 12, Line 23).

Regarding Claim 6-7, Dieckmann teaches a method where Al_2O_3 is used (see Example 1, Col 11, Line 52 to Col 12, Line 23).

Regarding Claim 9, Dieckmann teaches a method were $LaCu_{0.4}Mn_{0.6}O_3$ is used in the method as applied to Claim 1 (see Example 1, Col 11, Line 52 to Col 12, Line 23).

Regarding Claim 10, Dieckmann teaches a method where La, Cu, Mn were impregnated onto the

Regarding Claim 11, Dieckmann teaches a method where the catalyst contains 25% by weight $LnCu_{0.4}Mn_{0.6}O_3$ where Ln comprises La (see Example 1, Col 11, Line 52 to Col 12, Line 23).

Regarding Claim 12, Dieckmann teaches catalyst additive produced by the method as applied to Claim 1 (see Example 1, Col 11, Line 52 to Col 12, Line 37).

Regarding Claim 14, Dieckmann teaches that the composition is used as an additive particle for an FCC process (see Abstract and Example 1).

Claims 1, 3-7, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magnabosco et al (US Patent 5,108,979) and in further view of Kim(EP 0,554,968).

Magnabosco teaches a method of preparing synthetic spinel particles comprising:

(1) forming a mixture containing

(a) a compound of R^{2+}[A]

(b) a compound of R^{3+}[B]; and

(c) a compound of R^{2+}[C] or R^{3+}[D] (see Col 31, Lines 4-51)

(2) calcining the particles to produce crystals of a solid solution.

Magnabosco further teaches a preferred variation where the third metal is vanadia added directly to an alumina sol starting ingredient (see Col 31, Lines 4 to 25)

Magnabosco does not specifically teach that the catalyst is dried and aged before calcining.

Kim '968 teaches a method of preparing a metal passivation/Sox control composition for FCC comprising:

(1) aging a MgO/La2O3/Al2O3 oxide ternary precipitate (slurry mixture);

(2) spray drying the slurry mixture; and

(3) calcining the mixture (see Figure 2 and Page 2-3).

Kim '968 teaches that the method produces a catalyst additive that is effective in FCC catalyst in controlling SOx emissions and passivating metals while resisting attrition and maintaining high surface area (see Page 2, lines 20-29). Aging is well known in the art of catalyst preparation as a method of controlling the size and density of oxides (see Cites of Reference, Malley et al(US 2,980,632) where aging is used to control the density of alumina and Ashley et al(US 2411820) where aging is used to control the size of silica particles). Dieckmann, as applied above, further teaches multiple methods of preparing the slurry mixture including by suspension as above or by precipitation from nitrate showing that they are equivalent.

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Magnabosco where the slurry mixture is aged and dried before calcining as taught by Kim '968 to produce a catalyst effective in

resisting attrition and maintaining high surface area as well as to control the size and density of the particles according to the intended use.

It would also have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Kim '968 where the slurry mixture is produced by mixing oxides as taught by Magnabosco because Dieckmann teaches that they are equivalent methods to produce a slurry mixture.

Regarding Claim 3, Magnabosco teaches that during the process the homogeneity of the magnesium and aluminum is frozen so that the particles are substantially free of discernable complex compounds of magnesium and aluminum (see Col 11, Line 1 to Col 12, Lines 64 and Col 12, Lines 19 to 64).

Regarding Claim 4-5, Magnabosco teaches a method where Mg[A] is used in the preferred process and the specific form of magnesium oxide is taught in example (see Col 29, Lines 9 to 32 and Example 1).

Regarding Claim 6-7, Magnabosco teaches a method where Al[B] is used in the preferred process and the specific form of aluminum hydroxide is taught in example (see Col 29, Lines 9 to 32 and Col 33, Lines 5 to 8).

Regarding Claim 9, Magnabosco teaches a method were vanadia is used as the third metal in the method as applied to Claim 1 (see Col 31, Lines 4 to 25).

Regarding Claim 10, Magnabosco teaches a method where the vanadia is added directly to an alumina sol starting ingredient rather than to the aluminum and magnesium reaction mixture (see Col 32, Lines 4 to 10).

Claims 1 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al (US Patent 4,598,062) and in further view of Kim (EP 0,554,968).

Schneider teaches a method of preparing an iron oxide-chromium oxide catalyst containing MgO comprising:

(1) mixing magnesium oxide or a precursor with a precursor stage of iron oxide-chromium oxide;

(2) said precursor stage of iron oxide-chromium oxide is a mixture of the hydroxides and/or oxide hydrates of iron and chromium;

(3) calcining the mixture (see Col 2, Line 55 to Col 3, Line 46)

Schneider does not specifically teach that the catalyst is dried and aged before calcining.

Kim '968 teaches a method of preparing a metal passivation/Sox control composition for FCC comprising:

(1) aging a MgO/La2O3/Al2O3 oxide ternary precipitate (slurry mixture);

(2) spray drying the slurry mixture; and

(3) calcining the mixture (see Figure 2 and Page 2-3).

Kim '968 teaches that the method produces a catalyst additive that is effective in FCC catalyst in controlling SOx emissions and passivating metals while resisting attrition and maintaining high surface area (see Page 2, lines 20-29). Aging is well known in the art of catalyst preparation as a method of controlling the size and density of oxides (see Cites of Reference, Malley et al(US 2,980,632) where aging is used to control the density of alumina and Ashley et al(US 2,411,820) where aging is used to

control the size of silica particles). Dieckmann, as applied above, further teaches multiple methods of preparing the slurry mixture including by suspension as above or by precipitation from nitrate showing that they are equivalent.

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Schneider where the slurry mixture is aged and dried before calcining as taught by Kim '968 to produce a catalyst effective in resisting attrition and maintaining high surface area as well as to control the size and density of the particles according to the intended use.

It would also have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Kim '968 where the slurry mixture is produced by mixing oxides as taught by Schneider because Dieckmann teaches that suspending oxides and precipitating oxides from solution are equivalent methods to produce a slurry mixture.

Regarding Claim 8, Schneider teaches iron oxide or hydroxide are used in the method as applied to Claim 1 (see Col 2, Lines 62-64).

Regarding Claim 9, Schneider teaches that a chromium compound used in the method as applied to Claim 1 (see Col 2, Lines 62-64).

Claims 1, 4-7, 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent 5,603,823) and in further view of Kim (EP 0,554,968).

Kim '823 teaches a method for preparing a catalyst comprising:

(1) a slurry of alumina is combined with a slurry of magnesia and an La and/or Nd salt;

(2) the mixture is dried and calcined(see Col 2 Line 8 to Col 3, Line 35)

Kim '823 further specifically teaches in example a method where the rare earth compound is La2O3 and Nd2O3 with a wt % of 24.43% Rare Earth Oxide (see Example 3).

Kim '823 does not specifically teach a method where the slurry mixture is aged and dried before calcination.

Kim '968 teaches a method of preparing a metal passivation/Sox control composition for FCC comprising:

(1) aging a MgO/La2O3/Al2O3 oxide ternary precipitate (slurry mixture);

(2) spray drying the slurry mixture; and

(3) calcining the mixture (see Figure 2 and Page 2-3).

Kim '968 teaches that the method produces a catalyst additive that is effective in FCC catalyst in controlling SOx emissions and passivating metals while resisting attrition and maintaining high surface area (see Page 2, lines 20-29). Aging is well known in the art of catalyst preparation as a method of controlling the size and density of oxides (see Cites of Reference, Malley et al(US 2,980,632) where aging is used to control the density of alumina and Ashley et al(US 2411820) where aging is used to control the size of silica particles). Dieckmann, as applied above, further teaches multiple methods of preparing the slurry mixture including by suspension as above or by precipitation from nitrate showing that they are equivalent.

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Kim '823 where the slurry mixture is aged and dried before calcining as taught by Kim '968 to produce a catalyst effective in resisting attrition and maintaining high surface area as well as to control the size and density of the particles according to the intended use.

It would also have been obvious to one of ordinary skill in the art at the time of the invention to perform the method as taught by Kim '968 where the slurry mixture is produced by mixing oxides as taught by Kim '823 because Dieckmann teaches that they are equivalent methods to produce a slurry mixture.

Regarding Claim 4-7 and Claim 9, Kim '823 teaches a process where alumina slurry is mixed with magnesia slurry and an La and/or Nd salt.

Regarding Claim 11, Kim '823 teaches a specific example where the rare earth oxide compound has a wt% of 24.43% (see Example 3). Where a prior art reference specifically teaches an example that is a species of the genus of the claim, the claim is anticipated.

Regarding Claim 12, Kim '823 teaches catalyst composition produced by the process comprising:

(1) a slurry of alumina is combined with a slurry of magnesia; and

(2) 10-30 parts by weight rare earth compound selected from a group consisting of La oxide, Nd oxide, and mixtures thereof;

(3) the mixture is dried and calcined(see Col 2 Line 8 to Col 3, Line 35)

Regarding Claim 13, Kim '823 teaches a catalyst particle comprising the composition combined with binders, fillers, etc. by any conventional means (see Col 3, Line 66 to Col 4, Line 5). Kim '823 further teaches catalyst particle containing a zeolite component (molecular sieve) (see Col 4, Lines 8 to 18).

Regarding Claim 14, Kim '823 teaches that the composition is used as an additive particle for an FCC process (see Col 2, Lines 54 to 57)

Regarding Claim 15, Kim '823 teaches that the composition may be combined with fillers and/or binders to form particles suitable for use in an FCC process (see Col 2, Lines 54 to 67).

Response to Arguments

Regarding Applicant's argument that Magnabosco differs from the claim because it teaches that alumina is in the form of a sol, the argument is unpersuasive. A sol is not a precursor mixture in solution (see Specification of the Instant Application, Page 3, Lines 21-25).

Applicant's other arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Claims 1-15 are pending. Claim 1-15 are rejected. No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL FORREST whose telephone number is (571)270-5833. The examiner can normally be reached on Monday - Thursday, 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Mayes can be reached on (571)272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. Curtis Mayes
Supervisory Patent Examiner
Art Unit 1793

Michael Forrest
Patent Examiner
Art Unit 1793

/Michael Forrest/
10/9/2009

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793